# Predict Software Reliability Early


**Predict availability and other RAM metrics before the code is even written**

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# Agenda

## 01. The Challenge

The unique solution for predicting availability and SLO early, when there are alternatives

## 02. Key Features & Capabilities

Core predictions for defect density, escaped defects, availability, reliability and comprehensive benchmarking.

## 03. Target Users & Applications

How different teams leverage AI predictions for optimized testing and management.

## 04. Solution Demo & Next Steps

Forecasts in action and how to get started with trials.

# The Software Availability Challenge

## Why Early Prediction Matters

### The Cost Reality

Software failures cost the US economy $1.81 trillion annually (2022). Technical debt adds another $1.52 trillion.

### The Hidden Risk

System availability SLOs are being missed because of software.  Error budgets are off by up to 5 orders of magnitude.

### The Solution Opportunity

Predict availability and other RAM metrics early enough to make decisions

# The Requs AI Advantage

## Traditional Reactive Approach - Used Late in Cycle

C-SFRAT, 3S STAR tools are used late and require failure data

## Requs AI Shift-Left Approach

Data driven predictions orders of magnitude more accurate than guessing

AI-Powered from world's largest defect density benchmarking study

No need to wait for failure data

# Requs AI Predict: Uptime and RAM predictions

## Early Prediction

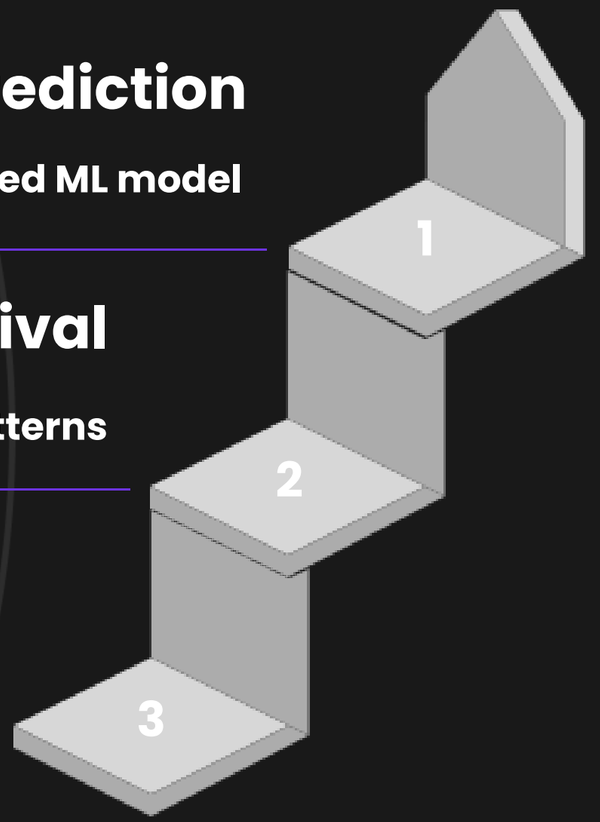
Predict defect density and total defects via locked ML model

## Forecast Escaped Defects Arrival

Visualize defect accumulation patterns

## Forecast RAM metrics before coding

Data driven error budgets and availability objectives




**689+**
Factors analyzed

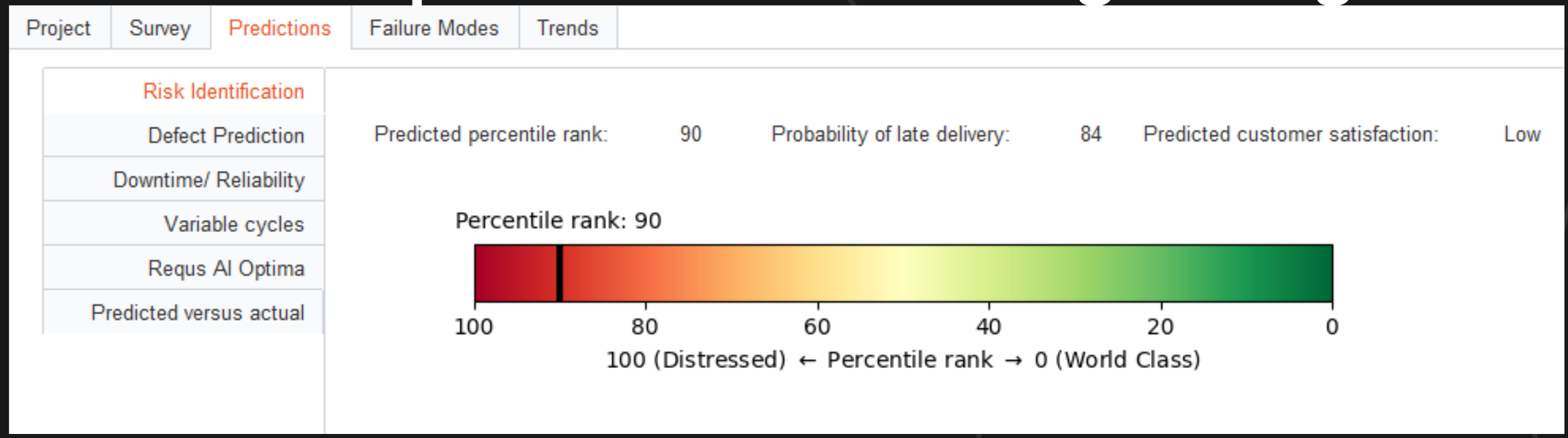
**World's largest**
defect density benchmarking study

# Early Defect Prediction Factors

**Built on USAF Rome Laboratories' 1987 prediction model foundation (enhanced since 1993), our benchmarking study identified 689 total factors across five critical categories that accurately predict defect density and program success.**

| Factor Category | Count | Key Examples | Assessment Method |
|---|---|---|---|
| Product | 50 | Size, complexity, design patterns | Static analysis tools |
| Product Risks | 12 | User risks, regulations, maturity | Risk assessment |
| People | 38 | Turnover, experience, team ratios | Team analysis |
| Process | 121 | Standards, compliance, procedures | SEI CMMi, ASPICE |
| Technique | 302 | Methods, tools, MBSE approaches | Technical audit |
| Non-Correlated | 166 | Factors that don't predict success | Benchmarking data |

# Data predicts better than guessing




## Answer Questions

Answer as many questions as possible about your project, including people, practices, techniques, tools, and risks. The more questions you answer, the more accurate your results will be.

## Machine Learning Analysis

The machine learning model processes your inputs and predicts the defect density and defects

## Defect prediction results

Receive comprehensive risk identification with percentile ranking and outcome probability predictions for decision making. Requs Ai Optima identifies how to reduce the risk with the least effect on the schedule

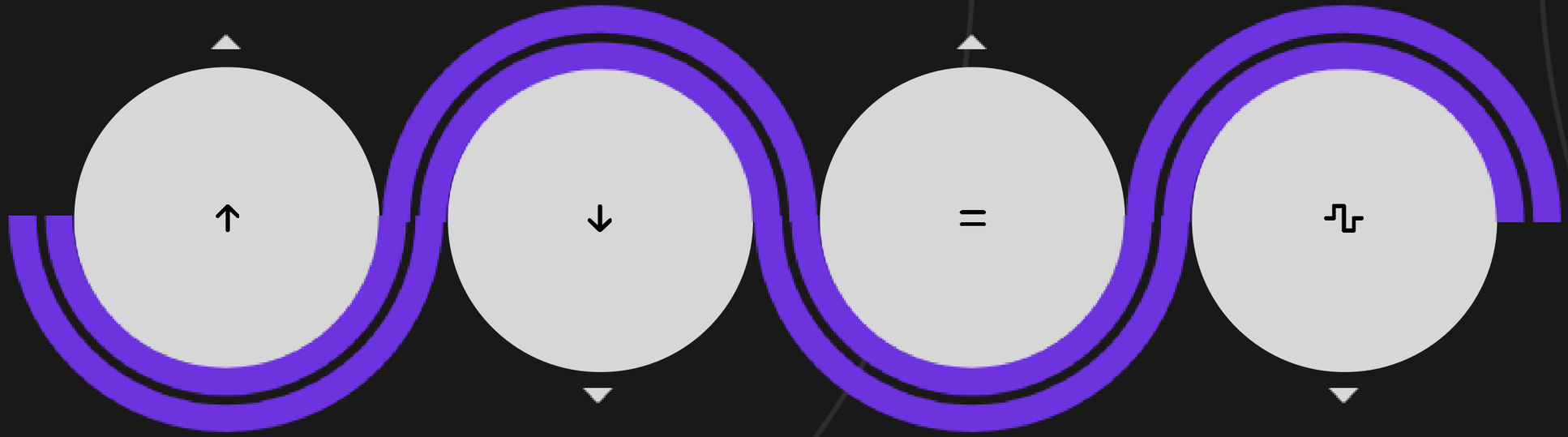
# Escaped Defects Arrival Forecast

**A good estimate of the total number of defects is nice.  But estimating when they will arrive is even better.**

**Defect pileup is a constant risk for both Agile and Waterfall development methodologies, necessitating continuous monitoring and proactive management to prevent accumulation.**

## Visual Trend Analysis

**Our forecasts show multiple program increments and releases over time, allowing you to visually see if accumulated defects is increasing or decreasing across development cycles.**



# Escaped defects -> RAM metrics

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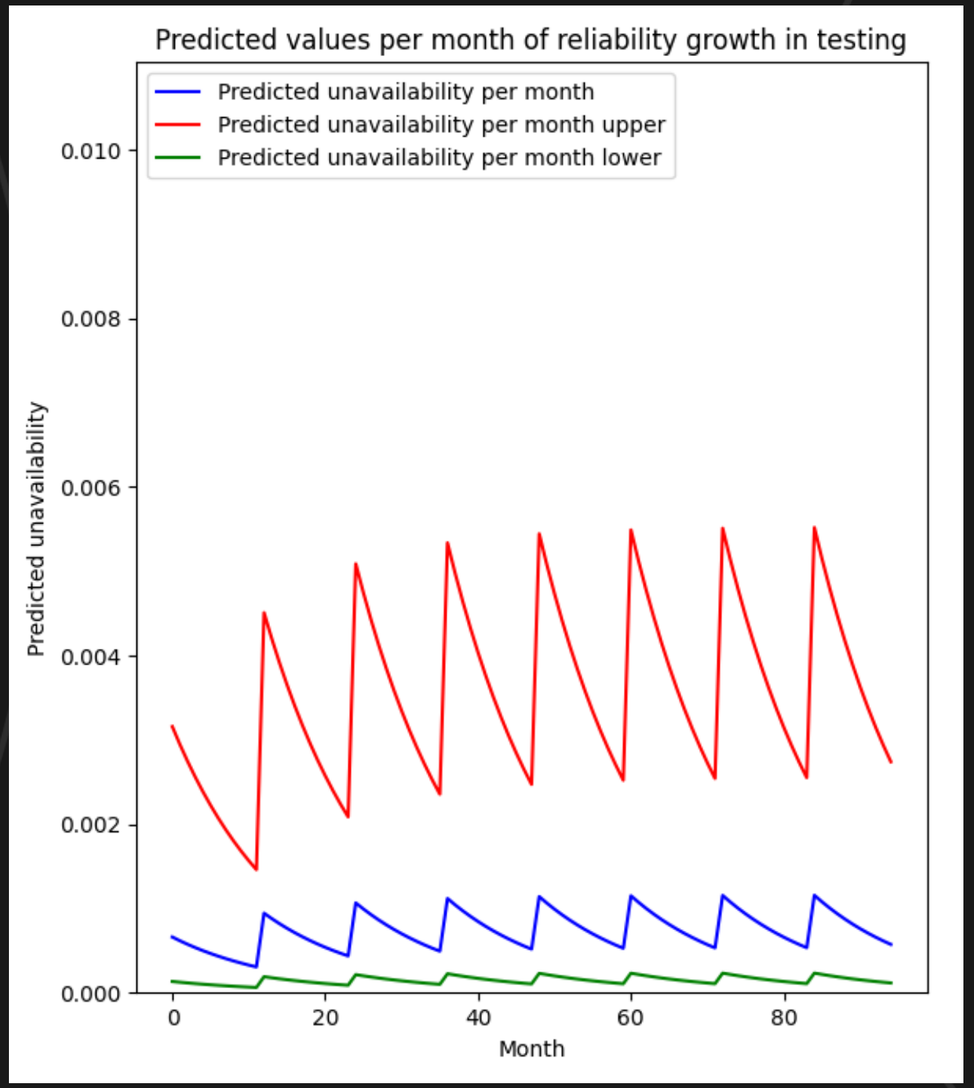

# There’s no comparison

| | Requs AI Predict<br>ML-powered, proactive | Frestimate / SRT<br>Regression-based, proactive | C-SFRAT<br>Reactive, test-phase | STAR<br>Reactive, post-coding |
|---|---|---|---|---|
| PREDICTION TIMING | Proactive<br>Before coding starts | Proactive<br>Before coding starts | Reactive<br>During and after testing and operational phases | Reactive<br>During and after coding |
| NEEDS NO HISTORICAL OR TESTING DATA | Yes | Yes | No | No |
| HOW DEFECTS ARE MEASURED | Machine learning model based on Q&A about development practices and scope size | Outdated regression analysis models that require user to know all inputs | Forecasts known discovery times into future | Forecasts known discovery times into future |
| CORE FUNCTION | Early prediction of escapes, MTBSF, MTBCSF, availability, probability of success | Early prediction of escapes, MTBSF, MTBCSF, availability, probability of success | Determines if failure rate meets requirements | Release readiness |

# People who use Requs Ai Predict


## Software Management

- Quickly identify programs about to go off rails.
- Gain quantitative evidence to justify critical changes.
- Make data-driven decisions for project success.

## Software Test QA

- Identify and predict testing risks early in development.
- Understand sensitivity of various test methods.
- Optimize fault injection and testing strategies.


## RAM  engineers

- Understand how high-risk translates to low availability.
- Enable first step in availability predictions.
- Improve overall system reliability and safety.

# Get Started: Licensing and Trial Options


## Flexible Licensing

- Dedicated and floating license options available
- Yearly subscription or perpetual licensing models
- Cloud and enterprise deployment configurations supported

## Schedule Demo

- See your hidden defect risks today with a personalized demonstration session
- Contact sales@missionreadysoftware.com for scheduling
- Personalized demonstration of your specific use case
- Discover hidden defect risks in your projects

## Start Trial

- Get hands-on experience with desktop version or try the cloud trial immediately
- Desktop trial version available for download
- Cloud trial at https://requsaipredict.com instantly accessible
- Experience full functionality with sample projects


**Ready to predict defects and SLA/RAM metrics before coding begins?**

**Contact us at sales@missionreadysoftware.com for a demo today.**